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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,261	07/03/2003	Sergey V.S. Pakhomov	51185-294721	4873

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EXAMINER
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RIMELL, SAMUEL G

ART UNIT	PAPER NUMBER
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2165

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/613,261

**Applicant(s)**

PAKHOMOV, SERGEY V.S.

**Examiner**

Sam Rimell

**Art Unit**

2165

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-15 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
**SAM RIMELL**  
**PRIMARY EXAMINER**

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9 and 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Taira (U.S. Pre-Grant Publication US 2003/0105638).

Claim 1: Paragraph 0084 outlines the step of gathering a large number of medical reports for the purpose of establishing a set of training data (paragraph 0086, lines 1-4). The medical reports constitute the corpus of text and includes both abbreviations and expansions of the abbreviation. An example is given in paragraph 0088, where the abbreviation is “5cm” and the expansion of the abbreviation is the word “large” in paragraph 0090.

The expansion is identified in paragraphs 0089-0092, where one logical relation is created having the expansion word “large” as one of the three optional possible logical relations for the correct meaning of “5cm”.

Context information is created in the form of a context vector “b” (see FIG. 10A and paragraph 0098) , which is used as part of a larger probability formula to determine the probability that the logical relation is true in a specific context.

The result is a set of mathematical probabilities which are the training data that the knowledge base uses to correctly determine whether the expansion is related to the phrase “5cm”.

Claim 2: The feature vector “b” (FIG. 10A and paragraph 0098) is readable as local context information because it based on information from the immediately surrounding sentence of a particular word (paragraph 0097, lines 5-6).

Claim 3: The local context information is the context vector b and is based upon the context within a given sentence (paragraph 0097, lines 5-6). The training data, which is the resulting probability calculation using the context vector b, would also be dependent upon that sentence.

Claim 4: Sentences inherently include words, so the sentence level information used to establish the context vector “b” word inherently end up being based on specific words.

Claim 5: The context information is the context vector “b” (FIG. 10A and paragraph 0098, lines 3-6). The context vector is defined in terms of feature functions “f(a, b)”, with these feature functions being readable as discourse context information. Both the context vector “b” and feature functions are stored in order to permit the probability calculation shown in paragraph 0096.

Claim 6: The “discourse context information” are the feature functions “f(a,b)”. The “discourse training data” is the resulting probability calculation using these function in paragraph 0096. All of these functions are calculations are based on the characteristics of sample text provided to generate the training data (paragraph 0084).

Claim 7: The local context information is the context vector “b”, while the discourse context information are the feature functions “f(a,b)”. The underlying numerical values in the respective vector and functions are the respective “local context data” and “discourse data”, lacking any further clarity in the claim as to exactly what these entities are.

Claim 8: The vector “b” described in paragraph 0096 through line 6 of paragraph 0098 is readable as a feature vector and defines the context information.

Claim 9: The probability calculation shown in paragraph 0096 is a maximum entropy model (as described in FIG. 10b) and utilizes feature vectors “b”. It determines the probability that an expanded version of abbreviated text, such as the word “Large” can be accurately related to an abbreviated phrase, such as “5 cm” (see paragraphs 0088 through 0092).

Claim 11: The text is processed using a statistical model (probability model of paragraph 0096 and FIG. 10b which illustrates the same model).

Claim 12: Paragraph 0088 gives an example of an abbreviation in the training text, such as the phrase “5cm”. Paragraph 0090 gives an example of an expansion of the abbreviation, such as the word “Large”. The training text (paragraph 0084) is processed to produce and identify the expansion of the abbreviation.

Claim 13: Paragraph 0084 outlines the collection of a corpus of documents used to create a knowledge base, which correlates to a database. The database includes both abbreviation data (phrases such as “5cm”) and expanded versions which are logically related to the abbreviations (words such as “Large”—see paragraphs 0098 and 0090). As described in paragraphs 0089-0092, logical relations are generated (three are shown in paragraphs 0090-0092) that identify at least one expansion (the word “Large” in paragraph 0090 is an expansion). For each of the three logical relations, a feature vector “b” is generated which includes context data (paragraph 0098, lines 3-5). The vectors are generated and stored so as to permit the calculation of probability that one of the three logical relations most closely correlates to the abbreviation when used in a specific context.

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Claim 14: See remarks for claims 2 and 5.

Claim 15: See remarks for claim 11.

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication should be directed to Sam Rimell at telephone number (571) 272-4084.



Sam Rimell  
Primary Examiner  
Art Unit 2165